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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,778	12/29/2003	Ralph R. Dammel	2003US313	8220

7590 01/25/2005  
Clariant Corporation  
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EXAMINER

LEE, SIN J

ART UNIT PAPER NUMBER

1752

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/748,778

Applicant(s)

DAMMEL, RALPH R.

Examiner

Sin J. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11-26-04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. It is to be noted that although the Examiner made a restriction requirement (between Group I (claims 1-24) and Group II (claims 25-33)) by a telephone call to Mr. Alan P. Kass (attorney for applicant) on January 14, 2005, upon reconsideration, the restriction requirement is hereby withdrawn, and all of the claims 1-33 were examined in this Office action.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 26, and 30, applicant recites "higher adamantane". Since applicant never define what they mean by "higher adamantane" (applicant's statement on pg.10, lines 7-11 *does not constitute* definition for a higher adamantine – it simply explains a general formula for adamantanes), the phrase renders the scope of present claims 1, 26, and 30 indefinite. *For example*, can a substituted adamantane be considered as "a higher adamantane"? For the purpose of examining the claims on the merit, the Examiner assumed that a substituted adamantane could be considered as a higher adamantane.

#### ***Claim Rejections - 35 USC § 102***

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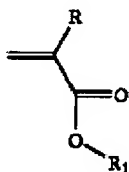
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

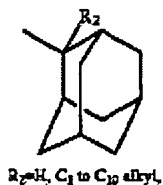
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 14-27, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Rahman et al (US 6,447,980 B1).

Rahman teaches (see claim 1) a photoresist composition comprising (a) polymer made from the monomers of maleic anhydride, t-butyl 5-norbornene-2-carboxylate, 2-hydroxyethyl 5-norbornene-2-carboxylate, 5-norbornene-2-carboxylic acid, 2-methyl adamantyl methacrylate, and mevalonic lactone ; and (b) a photoacid generator. The monomer of 2-methyl adamantyl methacrylate has the following structure (see col.5, lines 50-55, line 67, col.6, lines 1-10);



in which R<sub>1</sub> represents



R<sub>2</sub>=H, C<sub>1</sub> to C<sub>10</sub> alkyl,

in which R<sub>2</sub> is a methyl group, and the polycyclic ring shown above (just the ring itself, excluding the R<sub>2</sub> group and the single bond) is an adamantane ring which has the

formula of  $C_{10}H_{16}$ . **Present specification (pg.10, lines 8-11) states** that in general, adamantanes have the general formula of  $C_{(4k+6)}H_{(4k+12)}$  where  $k = 0, 1, 2, 3$ , and so on, and that *when  $k$  is 1, the formula is that of diamantane*. When  $k$  is 1 in the formula of  $C_{(4k+6)}H_{(4k+12)}$ , the formula becomes  $C_{10}H_{16}$ . Therefore, according to present specification, Rahman's adamantine ring teaches present diamantine, and Rahman's monomer unit of 2-methyl adamantyl methacrylate teaches present monomer unit having a pendant group of substituted diamantine (the substituent being a methyl group). Therefore, the prior art teaches present inventions of claims 1-4, 26, 27, 30, and 31.

Claim 3 of Rahman teaches the same photoacid generators to those of present claim 15. Thus, the prior art teaches present inventions of claims 14 and 15.

Rahman coats (see Example 12) his photoresist solution onto an antireflective film-coated silicon wafer, and the resist film is baked at  $110^{\circ}\text{C}$  for 90 seconds. The resist film is then imagewise exposed to 193 nm light source. After exposure, the wafer is post-exposure baked at  $110^{\circ}\text{C}$  for 90 seconds. The wafer is developed using 2.38 wt.% aqueous solution of tetramethyl ammonium hydroxide for 60 seconds. Therefore, the prior art teaches present inventions of claims 16-19, 21, and 22.

Rahman teaches (col.8, lines 57-60) that his photoresist composition can also be exposed using light source of electron beam, ion beam or laser radiation. Therefore, the prior art teaches present invention of claim 20.

Rahman furthermore teaches (col.9, lines 12-20) that after the development step, one may conduct a *post-development heat treatment*, which can comprise the oven

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baking or *UV hardening process*. Therefore, the prior art teaches present inventions of claims 23 and 24.

Rahman teaches (col.7, lines 6-10) that his polymers can be synthesized by free radical polymerization technique. Therefore, the prior art teaches present invention of claim 25.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*S. J. Lee*

S. Lee  
January 23, 2005

*Sin J. Lee*  
Sin J. Lee  
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